THE ECONOMICS OF CONCORD AND DeCHAUNAC GRAPE PRODUCTION IN ONTARIO, 1980

Economics Branch
Ontario Ministry of Agriculture and Food

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TABLE OF CONTENTS

	Page
SUMMARY	iv
BACKGROUND TO THE STUDY	1
Purpose	1
Sample	1
Calculation of Costs and Returns	2
AN OVERVIEW OF THE GRAPE INDUSTRY IN ONTARIO	4
Historical Development	4
Present Production	5
Cultural Aspects of Grape Growing	9
PRODUCTION COSTS BY VARIETY	10
Preharvest Costs	11
Harvesting and Marketing Costs	12
Overhead Costs	13
Returns and Gross Margin	14
PRODUCTION COSTS BY LOCATION	15
Preharvest Costs	15
Harvesting and Marketing Costs	18
Overhead Costs	19
Returns and Gross Margin	19
APPENDIX: **Pricing and Metric Presentation of Data in Tables 1, 2, 5, 9, 10, 11, 15, 16**	22
BIBLIOGRAPHY	29

LIST OF TABLES

Table		*Page*
1.	Grape Acreage, Production, and Farm Value in Ontario, 1966-1980	5
2.	Utilization of Ontario-Grown Grapes, 1966-1980	6
3.	Number of Grape Vines in Ontario, by Variety, 1956, 1966, 1976, 1979, and Plantings and Removals for 1980	7
4.	Ontario Wine Sales in Canada and Ontario, and Imported Wine Sales in Ontario, 1973-1980	8
5.	Production Costs per Acre of Concord and deChaunac Grapes, Ontario, 1980	11
6.	Preharvest Costs per Acre of Concord and deChaunac Grape Production, Ontario, 1980	12
7.	Harvesting and Marketing Costs per Acre of Concord and deChaunac Grape Production, Ontario, 1980	13
8.	Overhead Costs per Acre of Concord and deChaunac Grape Production, Ontario, 1980	14
9.	Costs and Returns of Concord and deChaunac Grape Production, per Acre and per Ton, Ontario, 1980	16
10.	Gross Margin of Concord and deChaunac Grape Production, per Acre and per Ton, Ontario, 1980	16
11.	Production Costs per Acre of Concord and deChaunac Grapes, Above and Below the Escarpment, Ontario, 1980	17
12.	Preharvest Costs per Acre of Concord and deChaunac Grape Production, Above and Below the Escarpment, Ontario, 1980	18
13.	Harvesting and Marketing Costs per Acre of Concord and deChaunac Grape Production, Above and Below the Escarpment, Ontario, 1980	19
14.	Overhead Costs per Acre of Concord and deChaunac Grape Production, Above and Below the Escarpment, Ontario, 1980	20
15.	Costs and Returns of Concord and deChaunac Grape Production, per Acre and per Ton, Above and Below the Escarpment, Ontario, 1980	20
16.	Gross Margin of Concord and deChaunac Grape Production, per Acre and per Ton, Above and Below the Escarpment, Ontario, 1980	21

SUMMARY

The highest volume of grapes marketed in Ontario was recorded in 1976, when 152 million pounds sold for $16.6 million. In 1980 the year's crop returned $21.3 million to Ontario growers.

Acreage has shown an upward trend, especially in the 1976-1980 period. The average in that period was 25,400 acres. The main acreage of grapes is grown in the Niagara Peninsula, but the area of plantings is increasing in southwestern Ontario.

The volume used for processing varies from year to year. The average over the last decade has, however, remained fairly constant at over 80 percent.

The variety of grapes being grown has been changing. Growers are gradually replacing the traditional labrusca grapes with new hybrid and vinifera varieties.

Sales of Ontario wine in Canada decreased in 1980 after three years of increasing sales. Also in 1980, the sale of imported wines in Ontario showed a decrease.

The Concord and deChaunac varieties of grapes were studied because they had the largest production in labrusca and French hybrid classes. Thirty-two Concord growers studied averaged 3.2 tons an acre; 26 deChaunac vineyards yielded 3.9 tons per acre.

Labor costs for deChaunac growers were nearly 9 percent higher than those for Concord producers, mainly because more time was spent in pruning and spraying the vines. Also, the cost of materials used on deChaunac vineyards was 16 percent higher than the cost for Concords.

The cost per acre of harvesting and marketing was 19 percent greater for deChaunacs. On a per-ton basis, however, the cost was very similar for the two varieties.

Total cost of production for deChaunacs was $1,315 an acre — 8 percent higher than the cost for Concords.

The gross return per ton for deChaunac grapes was higher than the return for Concords and, combined with the higher yield, allowed the deChaunac growers to gross 46 percent more than Concord growers. Net returns for both varieties were negative.

Gross margin, the amount remaining for family living and debt repayment, was $489 an acre for deChaunac and $179 an acre for Concords.

The study sample was selected so that 30 to 40 percent of the growers were located above the Niagara escarpment. Yields of both varieties were higher below the escarpment: for Concords, there was a 25 percent difference; for deChaunacs, 8 percent.

Both Concord and deChaunac growers recorded higher total costs per acre below the escarpment, but the difference was insignificant.

Gross returns for both Concords and deChaunacs were greater below the escarpment than above. Although net returns were negative in both areas, the loss was smaller below the escarpment.

Gross margin for Concords below the escarpment was more than double that for vineyards above. For deChaunac growers, the gross margin below the escarpment was only 9 percent higher than that above.

BACKGROUND TO THE STUDY

PURPOSE

At the request of the Grape Industry Advisory Committee (GIAC) and in cooperation with the Ontario Grape Growers' Marketing Board (OGGMB), the Economics Branch of the Ontario Ministry of Agriculture and Food (OMAF) conducted a cost-of-production study on the 1980 Ontario grape crop. The Economics Branch completed studies on the cost of producing grapes during the 1951-53 period and again during the 1959-62 period. Since 1962, no detailed farm study of grapes had been carried out in Ontario. During this period, the OGGMB and the Economics Branch developed several budgeted cost studies, but it was felt that a new base should be established; hence, this study was undertaken.

This study has three main objectives. They are:

1. To determine production costs and yields on two varieties of grapes produced above and below the escarpment in the Niagara Peninsula;

2. To examine and analyze differences in costs and yields by variety and location; and

3. To present detailed cost information in budgeted form that will be useful for farm planning, extension, and other purposes.

SAMPLE

In a meeting with the GIAC, it was agreed that a grower who was asked to cooperate in the study should have a minimum of 20 acres of grapes and that there would be no upper limit on the vineyard size. The OGGMB supplied the Economics Branch with a list of growers having 20 acres or more of grapes. This list was then divided into three acreage ranges with approximately the same number of growers in each range. The three ranges were 20 to 30 acres, 31 to 65 acres, and 66 acres and over. The sample consisted of 40 growers: 13 from each of the first two groups, and 14 from the third group. As well, an alternative sample was selected. If a grower in the original sample could not or would not cooperate, the first alternative in that size range was selected.

In conjunction with vineyard size, the factor of location also was considered in sample selection. As there are definite differences in climate, soil, and cultural practices for grapes grown above and below the Niagara escarpment, the sample had to include growers in both locations. So that the study data would reflect the actual distribution of vineyard production, 30 to 40 percent of the sample was composed of growers above the escarpment and 60 to 70 percent was made up of growers below (these percentages approximate the proportion of grapes produced in the respective locations). The factor of location was taken into account when alternative growers had to be chosen: the alternative was located in the same area as the grower originally selected.

Varieties also were taken into account in sample selection. In order to show any cost variables that may be affected by varietal differences, only two varieties of grapes were studied. Concord was chosen as the labrusca example and deChaunac as the French hybrid example.

CALCULATION OF COSTS AND RETURNS

Each grower was visited once, twice, or three times, depending on his availability and record-keeping abilities. During these visits, details were obtained on actual costs and quantities of materials and services used, on operator and family labor, on tractors and other equipment, and on land and buildings used. Costs shared among the different crops grown on a farm—both variable and fixed—were allocated proportionately to the grape crop on a per-acre or per-hour basis. The methods used to determine physical inputs and costs are discussed in the following sections.

LABOR

Growers recorded the hours of operator labor and any unpaid family labor; the latter, although not paid directly, was assigned a charge of $5.00 per hour. The wage rates for hired labor included the cash wages paid, the value of any benefits such as meals given to workers, and payments on the worker's behalf for Canada Pension Plan, unemployment insurance, and Workmen's Compensation. Housing (at the rate of $15 per week) and airfare for offshore labor were included where applicable.

TRACTORS AND EQUIPMENT

Where applicable, tractor and equipment costs included depreciation, interest on investment, repairs, maintenance labor, gas, oil, insurance, and housing. The costs of equipment used for other purposes on the farm were allocated according to estimates of total annual use and amount of use on the grape crop.

The depreciated value of the equipment was computed by depreciating the new value by the declining balance method at the rate of 15 percent for powered machines and 10 percent for other farm equipment. Depreciation for the crop was calculated on the computed value of the machines at the beginning of 1980. No depreciation was charged on obsolete equipment.

Interest on investment in the farm equipment was calculated at the rate of 13.56 percent of the depreciated value at the beginning of 1980. Interest on obsolete equipment was based on the present value of the equipment.

Insurance for farm equipment was computed on the basis of 50 cents per $100 of depreciated value. Insurance and licenses for farm trucks were included at cost.

A standard rate of 25 cents per square foot of space per machine was used to determine housing costs for farm machines. This rate included depreciation, insurance, interest, taxes, and repairs on the housing unit.

Since few growers could supply accurate information on the repair costs associated with each machine used on the grape crop, a standard method of calculating repair costs was developed. The new cost of buying the machine was estimated, then repair costs were calculated at the rate of 1 to 5 percent of this new cost, depending on the type of machine involved.

Maintenance labor performed by the farmer included making repairs, greasing, changing oil, setting up machinery, and general upkeep. Machines were categorized into five groups ranging from 5 to 25 hours of maintenance labor per 100 hours of use.

Fuel consumption for powered equipment was determined in discussion with the grower. A standard cost of 82 cents per gallon for gasoline and 83 cents per gallon for diesel fuel was used to compute the fuel cost. An additional 5 percent of the fuel costs was included to account for the cost of oil and grease.

MATERIALS

Growers provided data on the actual quantities and costs of commercial fertilizers, manure, sprays, cover-crop seed, and twine or wire for tying. Any normal maintenance materials such as vines, posts, anchors, or wire also were included in the annual costs.

BUILDINGS

Buildings used for housing of machinery and equipment or for repairs and maintenance were included in the costs of equipment. No other buildings were considered in the cost calculations.

INSURANCE

Liability and crop insurance were included at cost to the grower. Liability insurance for the farm was prorated according to the number of productive acres. Crop insurance was the actual amount paid for the grape crop. Insurance on farm machinery and buildings used for farm machinery storage was included with the tractor and equipment costs.

INTEREST ON OPERATING CAPITAL

Operating capital included expenditures for materials, fuel and oil, hired labor, custom work, and machine rental. Interest on operating capital charged to the crop was calculated at the rate of 18 percent per annum for a six-month period.

ALLOWANCE FOR MANAGEMENT

An allowance for management was included in the cost of producing grapes. The fee was calculated at the rate of 5 percent of the gross returns from the crop.

LAND AND VINEYARD

Costs included taxes and interest on investment on land used for growing grapes. The land value used was the current market value obtained in farmer-to-farmer sales in the area. Interest on investment was calculated at 3.5 percent; this figure was obtained by removing the inflation component from the 1980 average Farm Credit Corporation rate.[1]

OTHER COSTS

Proportions of the costs for telephone, accounting services, office supplies, magazine subscriptions, and farm organization memberships were charged to the grape crop according to the growers' estimates. Marketing Board fees also were charged to the marketed production.

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[1]Gordon E. Framst, *A Method for Determining Enterprise Land Costs* (Toronto: Economics Branch, Ontario Ministry of Agriculture and Food, May 1981).

AN OVERVIEW OF THE GRAPE INDUSTRY IN ONTARIO

HISTORICAL DEVELOPMENT

The cultivation of grapes for wine production in central Canada has a long history. During the mid-1600s, when the French first settled in Lower Canada, wild grape vines with small berries and thick clusters were growing in many areas of the Atlantic provinces and Quebec. (These plants can still be found in the region.) It is thought that Jesuit priests were the first to use the native Canadian grape to produce wine. Settlers also imported vines for cultivation. They soon found, however, that the winters in Lower Canada were too cold for the vineyards, especially for vines that were brought from France.

In Upper Canada (Ontario), along the shores of lakes Erie and Ontario, the climate was milder during the winter months, and the native grape vine grew prolifically. Seneca, Tuscarora, and Cayuga Indians were the first to make wine in Ontario, long before the area was settled by Europeans. It is thought these Indians offered an annual homage of grape juice to the water gods that existed below Niagara Falls.

In the early 1800s, a retired German army corporal, Johann Schiller, residing on the banks of the Credit River near present-day Cooksville, began fermenting wine from native grapes growing on his property. Porter Adams, who lived near the community of St. David's in the Niagara area, is generally recognized as the first person to systematically plant and cultivate vines around 1850. By the late 1850s, there were large plantings of grapes, and the acreage grew quickly during the next decade. Some of the varieties that were planted then — Concord, Delaware, and Catawba — are still popular today. In 1882 the Niagara variety was introduced, and it is still grown 100 years later.

The easiest method of tracing the history of grape growing in Ontario is to follow the development of the different varieties. For many years, the Concord was the most popular variety: during the 1860-1940 period, it was truly the "king" of Ontario grapes. It was not the ideal grape for wine, but it was certainly ideal for unfermented juice and jellies and still is today.

Since the end of World War II, many new varieties have been introduced. In response to changing consumer tastes and demands, grape researchers have shifted their focus from grapes that produce sweet dessert-type wines to hybrid grapes that produce dry wines. In the last two decades, growers have moved away from the "labrusca" types to cultivars that more closely resemble the "vinifera" varieties. Many of these new varieties have become quite popular. The most important is the French hybrid deChaunac, one of 35 varieties imported from France and now ranked second only to Concord in tonnage produced.

Grape research in Ontario is conducted at many different levels. Both the federal and provincial governments as well as individual wineries are involved in grape and wine research. There is a steering committee, the Grape Industry Advisory Committee, composed of winery personnel, government employees, marketing board members, and individual growers, that coordinates the grape and wine research carried out in

Ontario. This committee appraises the problems that exist and the direction in which the industry should be moving and assists in coordinating research conducted by the various agencies.

The many new varieties that are being developed have renewed interest in grape growing in the counties of Essex and Kent. The grape industry in this area of the province thrived during the 1880-1900 period but had almost disappeared by 1921. A combination of unsatisfactory climate for the available varieties of grapes and competition from crops such as tobacco, corn, and wheat that produced greater revenue with less risk quickly brought an end to the grape industry in southwestern Ontario.

Acreage and production in the Essex-Kent area are increasing each year. Cottage wineries are becoming popular in Ontario and are developing their own markets. The new varieties of grapes offer a better return than the older varieties and hence can serve as an alternative to the cash crops of southern Ontario. Growers and researchers have been pleased with the progress made in southern Ontario vineyards, and prospects for re-establishment of the grape industry in the Essex-Kent area look good.

PRESENT PRODUCTION

Table 1.—Grape Acreage, Production, and Farm Value in Ontario, 1966-1980

Year	Acres	Marketed production	Farm value
	number	'000 lb.	$'000
1980	26,526	132,755	21,262
1979	26,508	140,714	19,720
1978	25,420	148,999	18,368
1977	25,406	117,168	13,080
1976	23,329	152,481	16,642
1975	23,329	144,044	16,727
1974	23,329	135,397	15,180
1973	23,308	119,147	11,452
1972	22,497	104,281	8,928
1971	22,369	156,350	12,465
1970	22,369	126,362	9,479
1969	22,363	120,745	8,970
1968	22,380	109,200	6,743
1967	22,391	126,600	6,666
1966	21,808	115,500	5,933
5-year average			
1976-1980	25,438	138,423	17,814
1971-1975	22,966	131,844	12,950
1966-1970	22,262	119,681	7,558

Source: *Agricultural Statistics for Ontario,* Publication 20 (Toronto: Ontario Ministry of Agriculture and Food, various years).

Table 2.—Utilization of Ontario-Grown Grapes, 1966-1980

Year	Processing	Fresh market[a]	Marketed production	
			Processing	Fresh
	thousand pounds		percent	
1980	119,680	13,075	90	10
1979	119,330	21,384	85	15
1978	126,306	22,693	85	15
1977	91,586	25,582	78	22
1976	107,088	45,393	70	30
1975	101,540	42,504	70	30
1974	113,072	22,325	84	16
1973	105,412	13,735	88	12
1972	92,236	12,045	88	12
1971	133,972	22,378	86	14
1970	102,600	23,762	81	19
1969	93,600	27,145	78	22
1968	84,826	24,374	78	22
1967	86,140	40,460	68	32
1966	85,870	29,630	74	26
5-year average				
1976-1980	112,798	25,625	81	19
1971-1975	109,246	22,597	83	17
1966-1970	90,607	29,074	76	24

[a]Fresh market volume also includes any surplus that is purchased and grapes that are exported.

Source: *Agricultural Statistics for Ontario,* Publication 20 (Toronto: Ontario Ministry of Agriculture and Food, various years); and Ontario Grape Growers' Marketing Board.

Grape production in Ontario reached a peak in 1976, when growers marketed 152 million pounds valued at $16.6 million (Table 1). Production in 1980 dropped to about 133 million pounds; gross returns to producers, however, were $21.3 million. The lowest production in the last decade occurred in 1972, when only 104 million pounds were harvested.

The area of land planted in grapes has increased, especially in the last five years. In the period 1971-1975, the area in production averaged approximately 23,000 acres per year; in the period 1976-1980, it averaged 25,400 acres. A large percentage of this increase occurred in the area to the south of, or above, the escarpment in the Niagara Peninsula. Some of the acreage increase is taking place in southwestern Ontario.

The farm value of the grape crop also has shown a considerable increase over the last decade. The average value for the period 1976-1980 was $17.8 million, 37 percent higher than that in the previous five-year period. This increase reflects several factors, including increases in acreage, varieties, and prices.

Table 3.—Number of Grape Vines in Ontario, by Variety, 1956, 1966, 1976, 1979, and Plantings and Removals for 1980

Variety	1956	1966	1976	1979	1980 Plantings	1980 Removals
			thousand vines			
Foch	*	162	523	629	1.1	15.5
Fredonia	554	541	602	570	1.2	7.3
Elvira	112	515	914	899	26.9	.6
DeChaunac (S9549)	*	115	1,275	1,366	32.7	2.3
New York Muscat	*	35	107	130	11.1	-
Delaware	198	304	590	603	5.8	13.1
Chelois (S10878)	192	444	429	361	3.5	35.2
Niagara	672	1,127	1,599	1,405	.1	43.5
Ventura	*	*	136	229	42.7	-
Dutchess	*	134	323	415	16.3	11.7
Veeport	*	117	158	157	-	5.1
Concord	3,611	3,523	4,720	4,572	48.2	84.9
Agawam	271	532	720	622	2.1	15.9
Catawba	104	190	479	488	35.0	10.7
President	*	41	182	169	.6	17.5
Other	395	442	1,283	2,123	273.4	32.1
Total	6,109	8,222	14,040	14,738	500.7	295.4

Source: *1976 Fruit Tree Census, Part 1, Grapes* (Toronto: Ontario Ministry of Agriculture and Food) June 1977; and Ontario Grape Growers' Marketing Board.

* Included in other varieties.
- = nil.

Although the volume of grapes used for processing varies from year to year, the average for the two five-year periods in the last decade has varied by only 2 percent (Table 2). Annual processing volume, however, ranged from a low of 70 percent of the marketed crop in 1975 and 1976 to a high of 90 percent in 1980.

There has also been a change in the variety of grapes grown in Ontario. Growers have been switching from the traditional labrusca varieties, such as Concord and Niagara, to the new hybrid and vinifera varieties, such as Ventura, deChaunac, and Foch (Table 3). From 1976 to 1980, 185,000 Concord vines and 237,000 Niagara vines were removed from production. During the same period, 136,000 Ventura, 121,000 deChaunac, and over 100,000 Foch vines were planted, as well as more than one million vines of "other varieties," including vinifera.

Sales of Ontario wines in Canada decreased slightly in 1980, after three years of increasing sales to a high of 10 million gallons in 1979 (Table 4). Sales of Ontario wine in Ontario leveled off in 1980 at 7.6 million gallons, a slight increase over the 1979 volume. An important development in Ontario in 1980 was a significant decrease in sales of imported wines, which dropped below 50 percent of total wine sales.

Table 4.—Ontario Wine Sales in Canada and Ontario, and Imported Wine Sales in Ontario, 1973-1980

Year	Ontario wine sales		Imported wine sales in Ontario
	Canada	Ontario	
	thousand gallons		
1980	9,649	7,657	6,966
1979	10,075	7,637	7,559
1978	9,229	6,533	6,938
1977	9,122	6,245	6,057
1976	8,547	5,423	5,445
1975	8,853	5,180	4,483
1974	9,141	5,337	3,837
1973	9,793	5,497	3,323

Source: Ontario Grape Growers' Marketing Board.

If sales of imported wines continue to decline, Ontario wines may experience further increases in their volume of sales.

All grapes grown in Ontario that are used for processing are sold through the Ontario Grape Growers' Marketing Board. The OGGMB negotiates prices with processors and wineries for the different classes of grapes. The Board also establishes the terms and conditions of sale, although buyers contract directly with growers. Payments to growers are made through the OGGMB. The Board also promotes juice products and acts on behalf of growers on such matters as tarriffs, imports, and stabilization plans. (See the Appendix for a discussion of pricing.)

At present, there are 12 wineries in Ontario licensed by the Liquor Control Board of Ontario. The oldest are Barnes Wines Ltd. in St. Catharines and T.G. Bright and Co. Ltd. in Niagara Falls. In recent years, several new wineries have emerged, and their products are being widely accepted. The newer wineries are smaller and are concentrating on fewer wine varieties than is the case with older establishments.

In some years, growers may produce a surplus of certain varieties grown for processing. In this situation, the OGGMB and/or the federal Agricultural Products Board may purchase the excess grapes and have them processed for sale at a later date. Programs of this type help to level out the supply over years of high and low production.

A separate marketing board, the Fresh Grape Growers' Marketing Board, establishes prices, variety, grade, and terms and conditions of sale for Ontario-grown grapes sold on the fresh market. The Board conducts sales through appointed agents and promotes the consumption of fresh Ontario grapes.

The volume sold on the fresh market varies more than that sold for processing, as this market often serves as an outlet for surplus production. Many growers, however, produce grapes specifically for the fresh market, and a number of new varieties have been developed for this purpose.

CULTURAL ASPECTS OF GRAPE GROWING

In the Niagara Peninsula, most grapes are grown below the escarpment; however, plantings above the ridge are increasing each year. The most favored locations are set back from the lakeshore, just below and on the first ledge of the escarpment, where spring and summer temperatures are often several degrees higher than those at sites closer to the lake.

The main components of good site selection are air circulation and drainage. Good air circulation helps in the fight against disease, as well as in protecting against frost injury in spring and fall. A slight slope in the site is necessary to carry away surface water; the slope should not be too great, however, as this will encourage soil erosion.

Grapes can be and are grown on a wide variety of soils, but in the Niagara Peninsula, the majority are grown on two soil types — the poorly drained clays and clay loams above and on the first ledge of the escarpment. Grapes are grown also on sandy-loam soils below the escarpment and in the Fonthill area.

Before planting, the land must be prepared thoroughly. It is recommended that a green-manure crop be planted for one or two years before planting. If there is not good natural drainage, a tile system should be installed. The land should be worked deeply and thoroughly before planting. Hilling or ridging of the topsoil in the vine row may prove beneficial.

First-class nursery stock is important. Whether grown by the farmer or purchased from a nursery, the vines should be vigorous with strong, well-developed root systems. It is important to keep the root system moist before and after planting.

Rows are usually planted north and south so that vines will receive the maximum amount of sunlight. Spacing of vines within the row ranges from seven to nine feet, and rows are usually ten feet apart. Spacing should be adjusted for variety and soil type. The ideal spacing allows the vine to fill the trellis with foliage and grapes.

The vineyard may be planted in either early spring or late fall. After setting, the young vines are pruned back to force more vigorous shoots. If posts are set and wired soon after planting, training can be started immediately.

Well-cured cedar posts are used by most growers; however, steel posts are frequently used as intermediates. The cedar posts are set at least three feet into the ground and at the end of the rows are set on a slight angle outward. The post is then anchored to the ground. Most vineyards are set up using a two-wire system, with the bottom wire at least 30 inches from the ground. This is required so a mechanical harvester can catch the lowest-hanging fruit.

To train a young vine, twine is tied to the cane and to the top wire; then, two or three times during the growing season, the growing cane is wound around the twine. When the cane reaches the top wire, it is cut off just above the wire and tied tightly to it. During the second season's growth, all suckers and shoots not needed to form arms should be removed. It is advisable to keep the trunk below the lower wire free of shoots.

Pruning of a grape vine should be done during its dormant period — that is, after the first hard frost and before the vines start to "bleed"

in the spring. The selection of the most fruitful canes at pruning time is important. Following pruning and tightening of trellis wires in the spring, tying of the vines is necessary. Both jute grape twine and fine wire are used for tying, although jute is the more popular. The main trunk is tied to the wires as straight as possible. Each cane or arm is then tied twice to the wire, once at the tip and once near the trunk.

Suckers or shoots on the trunk at or below the surface of the soil should be removed. Occasionally summer pruning or topping may be necessary to eliminate excessive foliage.

Some cultivation of the soil is required. After the ground has been well worked in the spring, once-a-month cultivating should be sufficient. When the vine is three or four years old, chemicals replace the grape hoe in controlling weed growth in the row. All cultivation should stop by mid-August and a green-manure crop be seeded.

The application of organic matter and/or commercial fertilizer is mainly dependent on soil types. The recommended rate and type should be obtained through the leaf analysis service provided at the Horticultural Research Institute of Ontario.

Insects and diseases can cause serious damage in any vineyard, and close scrutiny should be maintained by the grower. Good cultural practices, as well as a recommended spray program, help to control disease and insect problems.

PRODUCTION COSTS BY VARIETY

Two varieties of grapes were studied to determine any differences in cost that may occur because of different cultural practices associated with each variety. Concord was the labrusca variety studied while the deChaunac variety represented the French hybrids. Thirty-two vineyards with an average of 16.1 acres of Concords per farm were compared with a group of 26 deChaunac growers who had an average of 11.7 acres of the study crop (Table 5). The Concord growers operated farms with just over 50 acres of grapes; the deChaunac growers each grew nearly 62 acres of grapes.

The Concord vineyards produced an average yield of 3.2 tons per acre, and deChaunac growers averaged 3.9 tons per acre. The deChaunac growers also spent more time in growing their grapes, primarily in the preharvest operations of spraying and pruning. Total labor costs per acre were 8.8 percent higher for this group than for Concord growers. Most of the individual cost items are discussed under the seasonal breakdowns in the next two subsections.

Total production costs for deChaunac grapes were 7.8 percent greater than those for Concords, at $1,315 per acre and $1,220 per acre respectively.

Table 5.—Production Costs per Acre of Concord and deChaunac Grapes, Ontario, 1980

Item	Concord	deChaunac
Number of records	32	26
Yield per acre, tons	3.2	3.9
Acres:		
Studied	16.1	11.7
Total	50.2	61.8
Hours per acre:		
Labor	81.5	88.8
Tractor	16.7	16.1
COSTS PER ACRE	dollars	
Labor:		
Hired	216.71	238.31
Operator	131.31	140.38
Total	348.02	378.69
Equipment, includes custom:		
Tractor	107.03	104.81
Machinery & equipment	347.44	363.87
Total	454.47	468.68
Materials:		
Fertilizer, manure	25.30	34.67
Spray	86.47	102.76
Twine, wire, posts, etc.	23.45	19.47
Total	135.22	156.90
Other:		
Marketing Board fees	16.10	19.35
Land & vineyard	164.32	165.62
Allowance to management	40.57	59.21
Interest on operating capital	41.46	47.28
Utilities, office, accounting	16.42	17.21
Miscellaneous	3.57	2.27
Total	282.44	310.94
TOTAL	1,220.15	1,315.21

PREHARVEST COSTS

Preharvest operations consist of those tasks that are performed in the vineyard before the grapes are harvested — for example, pruning, tying, fertilizing, spraying, vineyard maintenance, and cultivation. Preharvest costs were 4 percent lower for Concord growers, who averaged $787 per acre, than for deChaunac growers at $823 per acre (Table 6).

Labor use and costs were approximately 10 percent higher for deChaunac vineyards, as more time was spent on pruning and spraying of this variety. As well, thinning of bunches was carried out by some deChaunac growers. Operators of deChaunac vineyards themselves tended to spend more time pruning the vines than did Concord growers (this information is not included in the table).

Table 6.—Preharvest Costs per Acre of Concord and deChaunac Grape Production, Ontario, 1980

Item	Concord	deChaunac
Number of records	32	26
Acres:		
Studied	16.1	11.7
Total	50.2	61.8
Hours per acre:		
Labor	74.3	81.2
Tractor	13.6	12.8
COSTS PER ACRE	dollars	
Labor:		
Hired	194.34	214.79
Operator	118.42	126.85
Total	312.76	341.64
Equipment, includes custom:		
Tractor	87.49	83.46
Machinery	249.20	239.76
Total	336.69	323.22
Materials:		
Fertilizer, manure	25.30	34.67
Spray	86.47	102.76
Twine, wire, posts, etc.	23.45	19.47
Total	135.22	156.90
Miscellaneous	2.47	1.48
TOTAL	787.14	823.24

Higher tractor and machinery costs were reported for Concords, despite the use of extra sprays on the deChaunac variety. This is probably explained by the fact that deChaunac growers had larger farms: because the fixed costs of machinery were spread over a larger base, the hourly rate was a little lower.

The relative cost of materials used on the two varieties was 16 percent higher per acre for the deChaunacs. The Concord variety received less fertilizer and was not sprayed as often as the deChaunacs, and these factors are reflected in the costs.

It was impossible to separate the cost of twine and wire used for tying from the cost of material used for upkeep of the vineyards, since these items are often purchased together. The higher cost for the Concord vineyards reflects the age of the graperies. As well, many of the Concord vineyards were still on a three-wire system, whereas the deChaunacs were on a two-wire system.

HARVESTING AND MARKETING COSTS

Since harvesting and marketing operations are usually combined, and several growers had the grapes custom harvested, it was impossible to

Table 7.—Harvesting and Marketing Costs per Acre of Concord and deChaunac Grape Production, Ontario, 1980

Item	Concord	deChaunac
Number of records	32	26
Yield per acre, tons	3.2	3.9
Acres:		
Studied	16.1	11.7
Total	50.2	61.8
Hours per acre:		
Labor	7.2	7.6
Tractor	3.1	3.3
COSTS PER ACRE	dollars	
Labor:		
Hired	22.37	23.52
Operator	12.89	13.53
Total	35.26	37.05
Equipment, includes custom:		
Tractor	19.54	21.35
Machinery	98.24	124.11
Total	117.78	145.46
Other:		
Marketing Board fees	16.10	19.35
Miscellaneous	1.10	.79
Total	17.20	20.14
TOTAL	170.24	202.65

separate the two areas. Only three growers used hand harvesting. In order to avoid confusion in working out average costs, the cost of custom harvesting was substituted on these farms.

Time spent harvesting was slightly higher for deChaunacs than for Concords (Table 7). Labor costs were similar, but the cost of machinery was considerably higher for the deChaunac growers. This difference is not accounted for by the difference in harvesting time.

Marketing Board fees are $5.00 per ton. Because deChaunacs have a higher yield than Concords, the cost per acre was greater for the French hybrid variety.

Total costs of harvesting and marketing were $170 an acre for Concords and $203 an acre for deChaunacs, a difference of 19 percent. When the 22 percent difference in yield between the two varieties is taken into account, the cost per ton is similar at $52.87 for Concords and $52.36 for deChaunacs.

OVERHEAD COSTS

No differentiation could be made from land sales studied as to the value of a Concord vineyard as compared with a deChaunac. Sales could, however, be divided by location. Vineyards above the escarpment were

Table 8.—Overhead Costs per Acre of Concord and deChaunac Grape Production, Ontario, 1980

Item	Concord	deChaunac
Number of records	32	26
Acres:		
Studied	16.1	11.7
Total, grapes	50.2	61.8
Total, farm	73.8	71.6
	dollars	
COSTS PER ACRE		
Land & vineyard	164.32	165.62
Allowance to management, 5% of gross	40.57	59.21
Interest on operating capital	41.46	47.28
Utilities, office, accounting	16.42	17.21
TOTAL	262.77	289.32

valued at $4,000 per acre and vineyards below the escarpment at $4,400 per acre. Interest on investment was then applied to these values. Since the method of sample selection was based in part on location, the land charges are similar for the two varieties (Table 8).

As stated earlier, the study included an allowance for management of the vineyard, calculated at 5 percent of the gross returns from the crop. This amount was accounted for as part of the overhead costs. Since the Concord growers had a lower yield than the deChaunac growers, and since the deChaunac variety has a higher return per ton than the Concord, the management allowance was 46 percent higher for the deChaunac variety.

Interest on operating capital was charged at 18 percent per annum, but only for a six-month period. This cost was higher for deChaunac growers because they had higher labor and material charges than did Concord growers.

The cost of utilities, office supplies, accounting services, etc., does not vary according to the type of grapes grown. It was similar for both varieties.

RETURNS AND GROSS MARGIN

The processor price for Concords was $252 per ton while deChaunacs sold for $306 per ton (Table 9). Because the deChaunac growers had higher yields, they obtained 46 percent higher gross returns per acre than the Concord growers.

This study showed a continuation of the trend of decreasing net returns for grape growers. The first cost of production study on grapes during the period 1951-53 showed a net return of $31 per acre while a similar study for the period 1959-62 showed net returns had decreased to $7 per acre. In 1974 net returns were -$14 per acre.

In 1980, Concord growers averaged a negative net return of nearly$409 per acre. Only three growers, whose yields averaged nearly six tons per

acre, had positive net returns. DeChaunac growers were better off but still showed a negative return of $131 per acre. Seven of the 26 deChaunac growers had positive net returns, all with yields that were significantly above the average for the group.

With the present pricing structure and the average yields obtained by cooperators on the study, it is impossible for growers to obtain positive net returns from these two varieties of grapes. It appears that higher yields will produce positive returns, although growers seem unable or reluctant to improve their cultural practices to obtain these yields. The supply of both Concord and deChaunac grapes for processing is, at the present time, more than adequate and an increase in the supply, by increasing yields, will certainly not alleviate the situation. Also, the supply situation may be having an effect on the prices paid for these varieties. (See the Appendix for a discussion on pricing grapes.)

PRODUCTION COSTS BY LOCATION

Researchers have shown that there are definite differences in soil, climate, and cultural practices for grapes grown in areas above and below the Niagara escarpment. As described earlier, the sample in this study was selected so that between 30 and 40 percent of the sample was located above the escarpment, approximating the percentage of grape tonnage in that area.

Twenty-one of the 32 Concord farms and 17 of the 26 deChaunac growers were located below the escarpment (Table 11). The average size of the grape farms was larger above the escarpment, but more deChaunac grapes were grown per farm below the escarpment than above. Concord acreage per farm was larger above the escarpment.

Yield per acre exhibited a large variance for Concords: yield below the escarpment was 25 percent higher than that above, at 3.5 tons per acre. DeChaunac yields were only 8 percent greater below the escarpment. Despite the lower yields above the escarpment, both varieties required more labor hours and incurred higher labor costs above the escarpment.

Tractor and machinery costs were greater below the escarpment for both varieties studied. This suggests that the smaller farms below the escarpment cannot absorb the fixed costs of mechanical equipment as easily as the larger farms above the escarpment can.

Although both Concords and deChaunacs had higher total costs per acre below the escarpment, the difference was insignificant.

PREHARVEST COSTS

Preharvest labor costs were larger for both varieties above the escarpment (Table 12). Conversely, the use of tractors and machinery in preharvest operations was more costly below the escarpment than above.

Table 9.—Costs and Returns of Concord and deChaunac Grape Production, per Acre and per Ton, Ontario, 1980

Item	Concord	deChaunac
Number of records	32	26
Yield per acre, tons	3.2	3.9
Acres:		
Studied	16.1	11.7
Total	50.2	61.8
	dollars	
PER ACRE		
Gross returns	811.44	1,184.22
Total costs	1,220.15	1,315.21
Net returns	-408.71	-130.99
PER TON		
Gross returns	252.00	306.00
Total costs	378.93	339.85
Net returns	-126.93	-33.85

Table 10.—Gross Margin of Concord and deChaunac Grape Production, per Acre and per Ton, Ontario, 1980

Item	Concord	deChaunac
Number of records	32	26
Yield per acre, tons	3.2	3.9
Acres:		
Studied	16.1	11.7
Total	50.2	61.8
	dollars	
PER ACRE		
Gross returns	811.44	1,184.22
Variable costs:		
Hired labor	216.71	238.31
Tractor repairs, maint., fuel, oil, etc.	62.87	63.65
Machinery repairs, maint., fuel, oil, etc.	156.61	167.18
Materials	135.22	156.90
Interest on operating capital	41.46	47.28
Marketing Board fees	16.10	19.35
Miscellaneous	3.57	2.27
Total	632.54	694.94
Gross margin	178.90	489.28
PER TON		
Gross returns	252.00	306.00
Variable costs	196.44	179.57
Gross margin	55.56	126.43

Table 11.—Production Costs per Acre of Concord and deChaunac Grapes, Above and Below the Escarpment, Ontario, 1980

Item	Concord		deChaunac	
	Above	Below	Above	Below
Number of records	11	21	9	17
Yield per acre, tons	2.8	3.5	3.7	4.0
Acres:				
Studied	18.3	15.0	9.2	13.0
Total	58.4	45.9	65.4	59.9
Hours per acre:				
Labor	82.8	80.4	92.1	87.6
Tractor	16.9	16.5	13.9	16.9
COSTS PER ACRE				
	dollars			
Labor:				
Hired	207.14	222.09	223.85	243.72
Operator	145.97	121.50	171.49	128.74
Total	353.11	343.59	395.34	372.46
Equipment, includes custom:				
Tractor	97.60	112.69	92.73	109.33
Machinery	342.33	349.49	343.03	371.66
Total	439.93	462.18	435.76	480.99
Materials:				
Fertilizer, manure	27.92	23.54	37.89	33.47
Spray	89.46	84.26	114.72	98.29
Twine, wire, posts, etc.	20.23	25.42	18.04	20.00
Total	137.61	133.22	170.65	151.76
Other:				
Marketing Board fees	14.20	17.30	18.40	19.75
Land & vineyard	153.12	170.19	154.56	171.48
Allowance to management	35.78	43.60	56.30	60.44
Int. on oprtg. capital	40.31	42.04	46.23	47.66
Utilities, office, acctg.	13.86	18.09	14.27	19.15
Miscellaneous	4.06	3.22	2.99	2.00
Total	261.33	294.44	292.75	320.48
TOTAL	1,191.98	1,233.43	1,294.50	1,325.69

The apparent reasons for the higher machine costs below the escarpment were the smaller acreages of farms in this area and, in general, a tendency for farmers below the escarpment to use newer and more expensive machinery than that used by growers above the escarpment.

For both varieties studied, growers located above the escarpment spent more on fertilizer and manure than did growers below the escarpment. Spray costs also were greater for both varieties on farms located above the escarpment, since growers tended to add an extra spray.

The total preharvest costs per acre showed very little difference for both varieties when the two producing areas were compared.

Table 12.—Preharvest Costs per Acre of Concord and deChaunac Grape Production, Above and Below the Escarpment, Ontario, 1980

Item	Concord		deChaunac	
	Above	Below	Above	Below
Number of records	11	21	9	17
Acres:				
Studied	18.3	15.0	9.2	13.0
Total	58.4	45.9	65.4	59.9
Hours per acre:				
Labor	75.9	73.0	84.8	79.9
Tractor	14.0	13.3	10.9	13.5
COSTS PER ACRE		dollars		
Labor:				
Hired	186.49	198.70	201.36	219.81
Operator	132.85	108.80	157.41	115.42
Total	319.34	307.50	358.77	335.23
Equipment, includes custom:				
Tractor	79.21	92.48	72.56	87.54
Machinery	250.97	247.20	229.41	243.63
Total	330.18	339.68	301.97	331.17
Materials:				
Fertilizer, manure	27.92	23.54	37.89	33.47
Spray	89.46	84.26	114.72	98.29
Twine, wire, posts, etc.	20.23	25.42	18.04	20.00
Total	137.61	133.22	170.65	151.76
Miscellaneous	3.12	2.02	2.10	1.25
TOTAL	790.25	782.42	833.49	819.41

HARVESTING AND MARKETING COSTS

Once again, it was impossible to separate harvesting and marketing costs because of the method of harvesting and delivery to the processors. Per-acre labor hours and costs were slightly higher below the escarpment (Table 13), likely because the fields are smaller and harvesting takes a little longer. Also, yields are higher below the escarpment, and this factor adds to handling time.

The cost of machinery was greater below the escarpment for both varieties, but this again was attributable to the greater amount of time involved in harvesting and marketing.

Because Marketing Board fees are charged on a per-ton basis, the higher yields below the escarpment resulted in higher fees.

Total costs of harvesting and marketing were greater for both varieties below the escarpment. Concords showed a 12 percent difference in costs; the difference for deChaunacs was 9 percent.

When total harvesting and marketing costs are analyzed on a per-ton basis, the costs are similar except for Concords above the escarpment. The reason for the difference is the significantly lower yield experienced by Concord growers in that area.

Table 13.—Harvesting and Marketing Costs per Acre of Concord and deChaunac Grape Production, Above and Below the Escarpment, Ontario, 1980

Item	Concord		deChaunac	
	Above	Below	Above	Below
Number of records	11	21	9	17
Yield per acre, tons	2.8	3.5	3.7	4.0
Acres:				
Studied	18.3	15.0	9.2	13.0
Total	58.4	45.9	65.4	59.9
Hours per acre:				
Labor	6.9	7.4	7.3	7.7
Tractor	2.9	3.2	3.0	3.4
COSTS PER ACRE				
Labor:		dollars		
Hired	20.65	23.39	22.49	23.91
Operator	13.12	12.70	14.08	13.32
Total	33.77	36.09	36.57	37.23
Equipment, includes custom:				
Tractor	18.39	20.21	20.17	21.79
Machinery	91.36	102.29	113.62	128.03
Total	109.75	122.50	133.79	149.82
Other:				
Marketing Board fees	14.20	17.30	18.40	19.75
Miscellaneous	.94	1.20	.89	.75
Total	15.14	18.50	19.29	20.50
TOTAL	158.66	177.09	189.65	207.55

OVERHEAD COSTS

Each of the components contained in overhead costs was higher below the escarpment for both varieties (Table 14).

Land and vineyard were valued at $4,400 per acre below the escarpment and $4,000 per acre above the escarpment. This difference explains the larger interest charges below the escarpment.

The allowance to management was larger for both varieties below the escarpment, but this is directly related to the higher yields in the area.

The utilities, office, and accounting component is significantly greater below the escarpment, mainly because farms are smaller and this cost component is spread over the whole farm operation.

RETURNS AND GROSS MARGIN

Cooperators located below the escarpment obtained higher yields of both varieties than growers located above the escarpment. Despite the higher yields, the average net return was still negative. The three Concord growers and 5 of the 7 deChaunac growers that obtained positive net

Table 14.—Overhead Costs per Acre of Concord and deChaunac Grape Production, Above and Below the Escarpment, Ontario, 1980

Item	Concord		deChaunac	
	Above	Below	Above	Below
Number of records	11	21	9	17
Acres:				
Studied	18.3	15.0	9.2	13.0
Total, grapes	58.4	45.9	65.4	59.9
Total, farm	84.7	68.1	82.4	65.9
	dollars			
COSTS PER ACRE				
Land & vineyard	153.12	170.19	154.56	171.48
Allowance to management, 5% of gross	35.78	43.60	56.30	60.44
Interest on operating capital	40.31	42.04	46.23	47.66
Utilities, office, accounting	13.86	18.09	14.27	19.15
TOTAL	243.07	273.92	271.36	298.73

Table 15.—Costs and Returns of Concord and deChaunac Grape Production, per Acre and per Ton, Above and Below the Escarpment, Ontario, 1980

Item	Concord		deChaunac	
	Above	Below	Above	Below
Number of records	11	21	9	17
Yield per acre, tons	2.8	3.5	3.7	4.0
Acres:				
Studied	18.3	15.0	9.2	13.0
Total	58.4	45.9	65.4	59.9
	dollars			
PER ACRE				
Gross returns	715.68	871.92	1,126.08	1,208.70
Total costs	1,191.98	1,233.43	1,294.50	1,325.69
Net returns	-476.30	-361.51	-168.42	-116.99
PER TON				
Gross returns	252.00	252.00	306.00	306.00
Total costs	419.71	356.48	351.77	335.62
Net returns	-167.71	-104.48	-45.77	-29.62

returns were located below the escarpment. This indicates that growers located below the escarpment have a better chance of obtaining positive net returns if they produce yields significantly above average.

Perhaps the greatest effect of variety and location is shown when gross returns are compared. Concords grown above the escarpment produced gross returns of $716 per acre, while deChaunac grapes grown below the escarpment grossed $1,209 per acre, a difference of 69 percent.

Table 16.—Gross Margin of Concord and deChaunac Grape Production, per Acre and per Ton, Above and Below the Escarpment, Ontario, 1980

Item	Concord		deChaunac	
	Above	Below	Above	Below
Number of records	11	21	9	17
Yield per acre, tons	2.8	3.5	3.7	4.0
Acres:				
Studied	18.3	15.0	9.2	13.0
Total	58.4	45.9	65.4	59.9
	dollars			
PER ACRE				
Gross returns	715.68	871.92	1,126.08	1,208.70
Variable costs:				
Hired labor	207.14	222.09	223.85	243.72
Tractor rep., fuel, maint. etc.	57.92	65.81	55.02	67.00
Machinery rep. fuel, maint. etc.	143.93	164.17	148.26	174.57
Materials	137.61	133.22	170.65	151.76
Interest on oprtg. capital	40.31	42.04	46.23	47.66
Marketing Board fees	14.20	17.30	18.40	19.75
Miscellaneous	4.06	3.22	2.99	2.00
Total	605.17	647.85	665.40	706.46
Gross margin	110.51	224.07	460.68	502.24
PER TON				
Gross returns	252.00	252.00	306.00	306.00
Variable costs	213.09	187.24	180.82	178.85
Gross margin	38.91	64.76	125.18	127.15

For both varieties, total variable costs were greater on farms located below the escarpment (Table 16). Except for the cost of materials, all other components of variable costs were higher on farms below the escarpment.

The gross margin for Concord vineyards below the escarpment was more than double that for farms above the escarpment; deChaunac growers below the escarpment experienced only a 9 percent higher gross margin than growers above.

When a per-ton analysis is used, the percentage differences in gross margin are much less as this method eliminates the effect of yield on gross returns.

Concord growers below the escarpment have a significant financial advantage over those growers located above the escarpment. For deChaunac growers, location has little effect.

APPENDIX

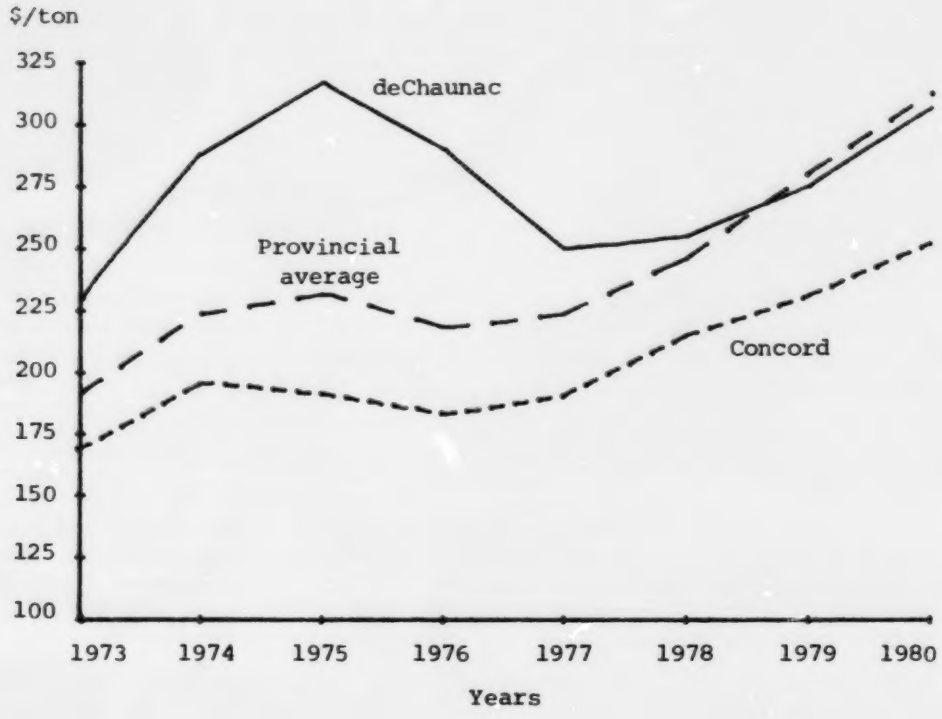
The price for processing grapes is set by negotiation. This is done by the Grape Industry Advisory Committee, which consists of four members appointed by the Ontario Tender Fruit Marketing Board; three members appointed by the Wine Council of Ontario; and one member appointed by the Ontario Food Processors Association.

The following considerations are taken into account while negotiating price:

1. Marketability of the grapes;
2. Ease or difficulty of growing grapes; and
3. Cost of production.

Different varieties of grapes have varying effects on these factors. Therefore, grapes are divided into 10 classes and prices are set for each class.

Concord grapes are in demand mainly for juice production. Supplies of juice-type grapes have remained plentiful, therefore prices have remained consistently below the provincial average. On the other hand deChaunacs have been in demand for wine-making, but their cost of production is higher. They are not easy to grow and they require significantly more hand labor. Thus the deChaunac price has been higher than the Concords by $40 to $100 per ton over the last eight years.



Prices for Concord, deChaunac, and Provincial Average, 1973-1980

Year	*Concord*	*deChaunac*	*Provincial average*
		dollars per ton	
1973	*169*	*230*	*192*
1974	*196*	*288*	*224*
1975	*191*	*317*	*232*
1976	*183*	*290*	*218*
1977	*191*	*250*	*224*
1978	*215*	*255*	*246*
1979	*231*	*275*	*280*
1980	*252*	*306*	*312*

Appendix Table 1.—Grape Area, Production, and Farm Value in Ontario, 1966-1980

Year	Hectares	Marketed production	Farm value
	number	tonnes	$'000
1980	10,735	60,218	21,262
1979	10,728	63,828	19,720
1978	10,287	67,586	18,368
1977	10,281	53,147	13,080
1976	9,441	69,165	16,642
1975	9,441	65,338	16,727
1974	9,441	61,416	15,180
1973	9,432	54,045	11,452
1972	9,104	47,302	8,928
1971	9,052	70,920	12,465
1970	9,052	57,318	9,479
1969	9,050	54,770	8,970
1968	9,057	49,533	6,743
1967	9,061	57,426	6,666
1966	8,825	52,391	5,933
5-year average			
1976-1980	10,294	62,789	17,814
1971-1975	9,294	59,804	12,950
1966-1970	9,009	54,287	7,558

Source: *Agricultural Statistics for Ontario*, Publication 20 (Toronto: Ontario Ministry of Agriculture and Food, various years).

Appendix Table 2.—Utilization of Ontario-Grown Grapes, 1966-1980

Year	Processing	Fresh market[a]	Marketed production	
			Processing	Fresh
	tonnes	tonnes	percent	
1980	54,287	5,931	90	10
1979	54,128	9,700	85	15
1978	57,292	10,294	85	15
1977	41,543	11,604	78	22
1976	48,575	20,590	70	30
1975	46,058	19,280	70	30
1974	51,289	10,127	84	16
1973	47,815	6,230	88	12
1972	41,838	5,464	88	12
1971	60,770	10,150	36	14
1970	46,539	10,779	81	19
1969	42,457	12,313	78	22
1968	38,477	11,056	78	22
1967	39,073	18,353	68	32
1966	38,951	13,440	74	26
5-year average				
1976-1980	51,165	11,624	81	19
1971-1975	49,554	10,250	83	17
1966-1970	41,099	13,188	76	24

[a]Fresh market volume also includes any surplus that is purchased and grapes that are exported.

Source: *Agricultural Statistics for Ontario*, Publication 20 (Toronto: Ontario Ministry of Agriculture and Food, various years); and Ontario Grape Growers' Marketing Board.

Appendix Table 3.—Production Costs per Hectare of Concord and deChaunac Grapes, Ontario, 1980

Item	Concord	deChaunac
Number of records	32	26
Yield per hectare, tonnes	7.2	8.7
Hectares:		
Studied	39.8	28.9
Total	124.0	152.7
Hours per hectare:		
Labor	201.4	219.4
Tractor	41.3	39.8
COSTS PER HECTARE		
	dollars	
Labor:		
Hired	535.51	588.89
Operator	324.48	346.89
Total	859.99	935.78
Equipment, includes custom:		
Tractor	264.48	259.00
Machinery & equipment	858.56	899.16
Total	1,123.04	1,158.16
Materials:		
Fertilizer, manure	62.52	85.67
Spray	213.68	253.93
Twine, wire, posts, etc.	57.95	48.11
Total	334.15	387.71
Other:		
Marketing Board fees	39.78	47.82
Land & vineyard	406.05	409.26
Allowance to management	100.25	146.31
Interest on operating capital	102.45	116.83
Utilities, office, accounting	40.58	42.53
Miscellaneous	8.82	5.61
Total	697.93	768.36
TOTAL	3,015.11	3,250.01

Appendix Table 4.—Costs and Returns of Concord and deChaunac Grape Production, per Hectare and per Tonne, Ontario, 1980

Item	Concord	deChaunac
Number of records	32	26
Yield per hectare, tonnes	7.2	8.7
Hectares:		
Studied	39.8	28.9
Total	124.0	152.7
	dollars	
PER HECTARE		
Gross returns	2,005.15	2,926.33
Total costs	3,015.11	3,250.01
Net returns	-1,009.96	-323.68
PER TONNE		
Gross returns	277.78	337.30
Total costs	417.69	374.61
Net returns	-139.91	-37.31

Appendix Table 5.—Gross Margin of Concord and deChaunac Grape Production, per Hectare and per Tonne, Ontario, 1980

Item	Concord	deChaunac
Number of records	32	26
Yield per hectare, tonnes	7.2	8.7
Hectares:		
Studied	39.8	28.9
Total	124.0	152.7
	dollars	
PER HECTARE		
Gross returns	2,005.15	2,926.33
Variable costs:		
Hired labor	535.51	588.89
Tractor repairs, maint., fuel, oil, etc.	155.36	157.29
Machinery repairs, maint., fuel, oil, etc.	387.00	413.12
Materials	334.15	387.71
Interest on operating capital	102.45	116.83
Marketing Board fees	39.78	47.82
Miscellaneous	8.82	5.61
Total	1,563.07	1,717.27
Gross margin	442.08	1,209.06
PER TONNE		
Gross returns	277.78	337.30
Variable costs	216.54	197.94
Gross margin	61.24	139.36

Appendix Table 6.—Production Costs per Hectare of Concord and deChaunac Grapes, Above and Below the Escarpment, Ontario, 1980

Item	Concord		deChaunac	
	Above	Below	Above	Below
Number of records	11	21	9	17
Yield per hectare, tonnes	6.3	7.8	8.3	9.0
Hectares:				
Studied	45.2	37.1	22.7	32.1
Total	144.3	113.4	161.6	148.0
Hours per hectare:				
Labor	204.6	198.7	227.6	216.5
Tractor	41.8	40.8	34.3	41.8
COSTS PER HECTARE		dollars		
Labor:				
Hired	511.86	548.81	553.16	602.26
Operator	360.71	300.24	423.77	318.13
Total	872.57	849.05	976.93	920.39
Equipment, includes custom:				
Tractor	241.18	278.46	229.15	270.17
Machinery	845.93	863.62	847.66	918.41
Total	1,087.11	1,142.08	1,076.81	1,188.58
Materials:				
Fertilizer, manure	68.99	58.17	93.63	82.71
Spray	221.07	208.21	283.48	242.88
Twine, wire, posts, etc.	49.99	62.82	44.58	49.42
Total	340.05	329.20	421.69	375.01
Other:				
Marketing Board fees	35.09	42.75	45.47	48.80
Land & vineyard	378.37	420.56	381.93	423.75
Allowance to management	88.42	107.74	139.12	149.35
Int. on oprtg. capital	99.61	103.89	114.24	117.77
Utilities, office, acctg.	34.25	44.70	35.26	47.32
Miscellaneous	10.03	7.96	7.39	4.94
Total	645.77	727.60	723.41	791.93
TOTAL	2,945.50	3,047.93	3,198.84	3,275.91

Appendix Table 7.—Costs and Returns of Concord and deChaunac Grape Production, per Hectare and per Tonne, Above and Below the Escarpment, Ontario, 1980

Item	Concord		deChaunac	
	Above	Below	Above	Below
Number of records	11	21	9	17
Yield per hectare, tonnes	6.3	7.8	8.3	9.0
Hectares:				
Studied	45.2	37.1	22.7	32.1
Total	144.3	113.4	161.6	148.0
	dollars			
PER HECTARE				
Gross returns	1,768.52	2,154.60	2,782.66	2,986.82
Total costs	2,945.50	3,047.93	3,198.84	3,275.91
Net returns	-1,176.98	-893.33	-416.18	-289.09
PER TONNE				
Gross returns	277.78	277.78	337.30	337.30
Total costs	462.64	392.95	387.75	369.95
Net returns	-184.86	-115.17	-50.45	-32.65

Appendix Table 8.—Gross Margin of Concord and deChaunac Grape Production, per Hectare and per Tonne, Above and Below the Escarpment, Ontario, 1980

Item	Concord		deChaunac	
	Above	Below	Above	Below
Number of records	11	21	9	17
Yield per hectare, tonnes	6.3	7.8	8.3	9.0
Hectares:				
Studied	45.2	37.1	22.7	32.1
Total	144.3	113.4	161.6	148.0
PER HECTARE				
Gross returns	1,768.52	2,154.60	2,782.66	2,986.82
Variable costs:				
Hired labor	511.86	548.81	553.16	602.26
Tractor rep., fuel, etc.	143.13	162.62	135.96	165.57
Machinery rep., fuel, etc.	355.67	405.67	366.36	431.38
Materials	340.05	329.20	421.69	375.01
Int. on oprtg. capital	99.61	103.89	114.24	117.77
Marketing Board fees	35.09	42.75	45.47	48.80
Miscellaneous	10.03	7.96	7.39	4.94
Total	1,495.44	1,600.90	1,644.27	1,745.73
Gross margin	273.08	553.70	1,138.39	1,241.09
PER TONNE				
Gross returns	277.78	277.78	337.30	337.30
Variable costs	234.89	206.40	199.32	197.14
Gross margin	42.89	71.38	137.98	140.16

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